



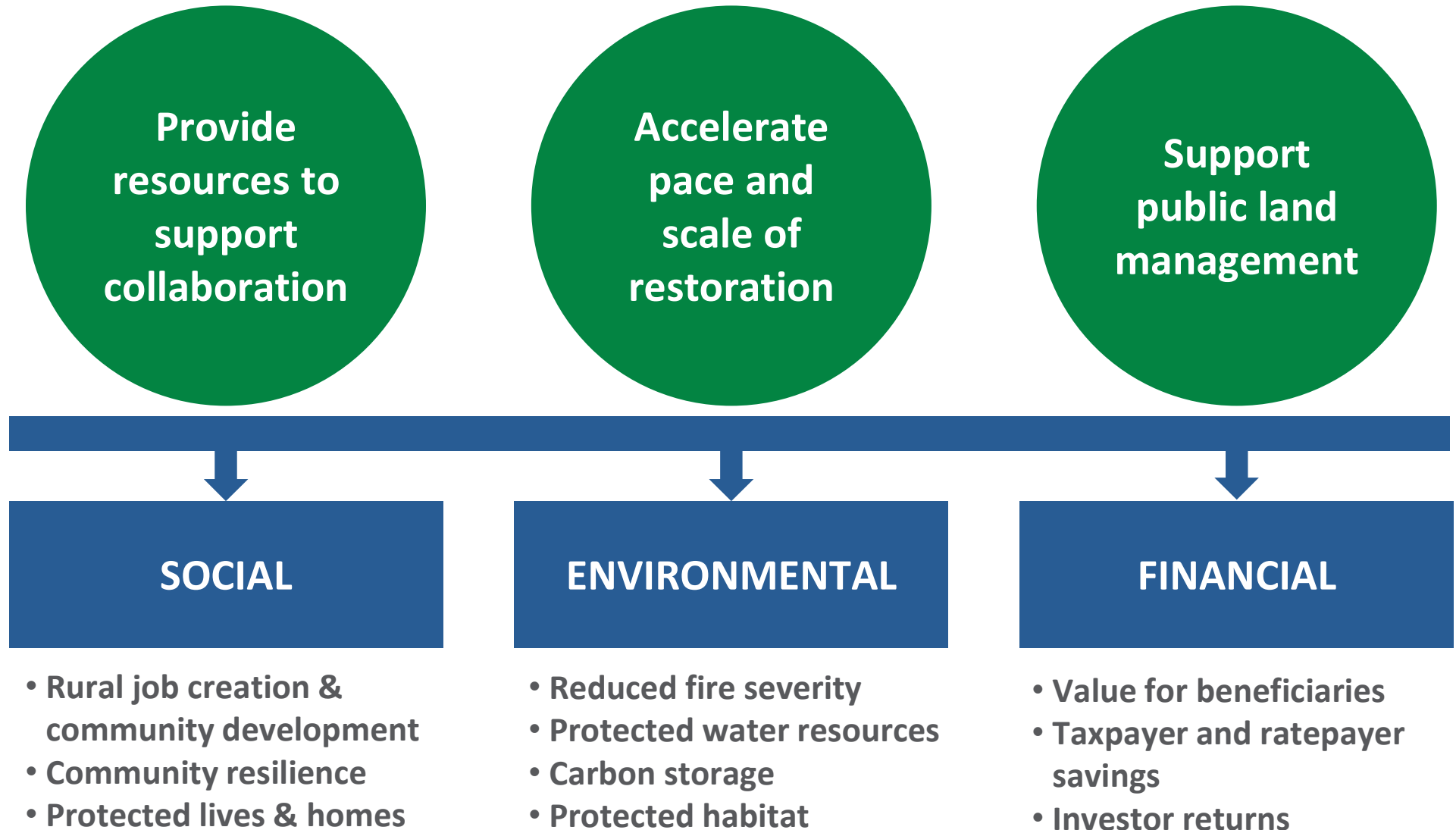
# Introduction to the Forest Resilience Bond (FRB)

*Prepared for California State Board of Forestry and Fire Prevention*

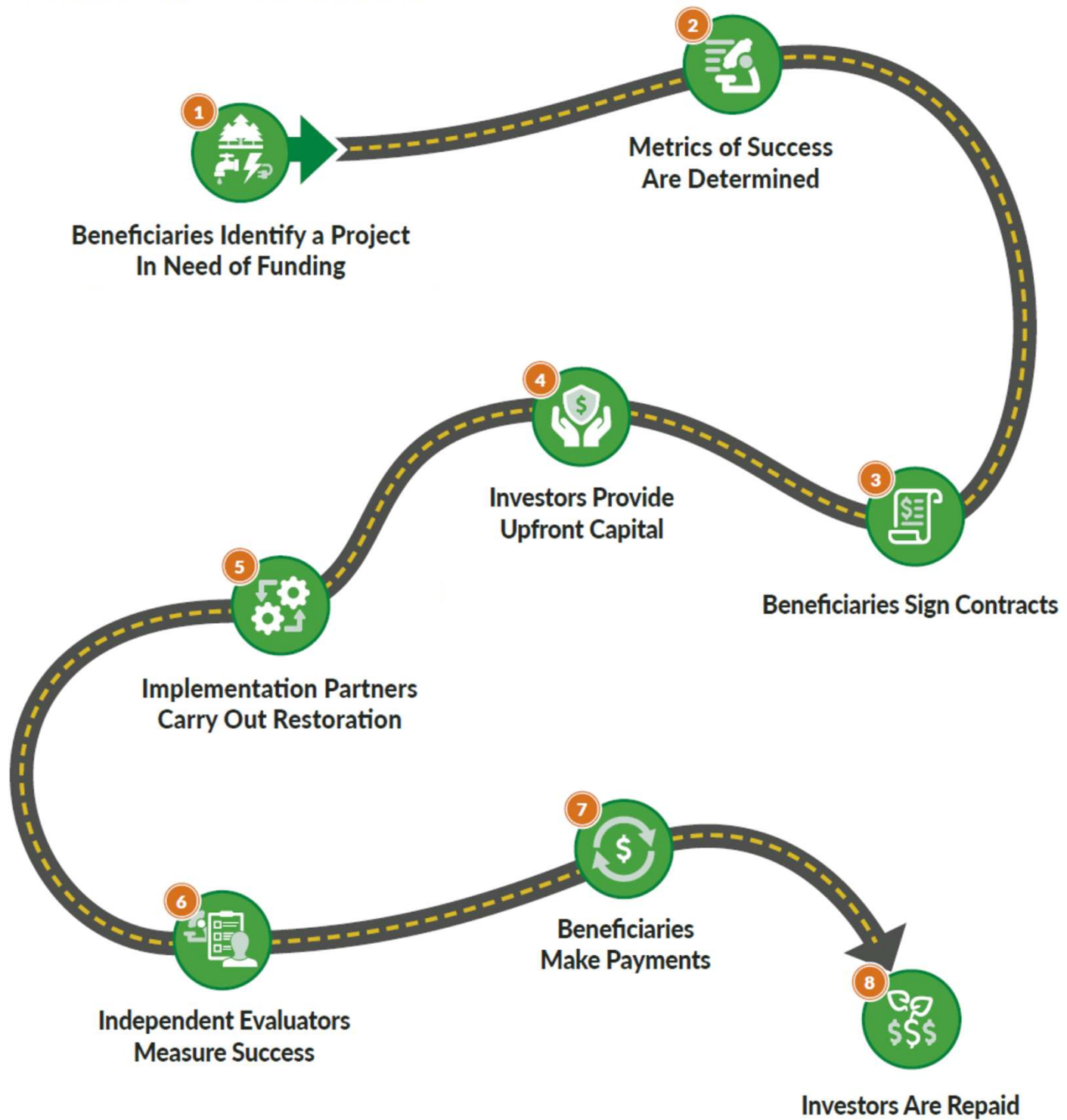
**April 11<sup>th</sup>, 2018**

# Goals of the Forest Resilience Bond

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# How the FRB Works



# The Forest Resilience Bond Ecosystem



## Project Partners



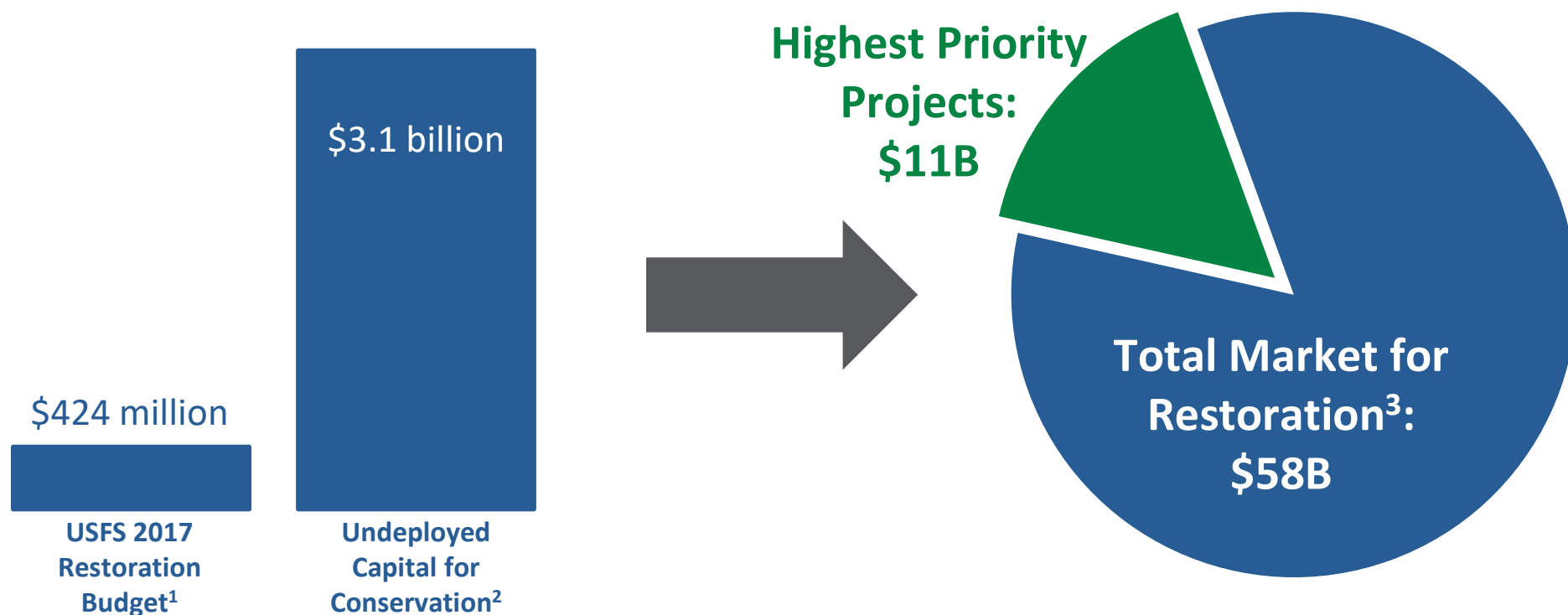
## Research Partners



## Grant & In-Kind Funders



# Opportunity for Private Capital



## Advantages of Private Capital

Infusion of capital

Cost sharing

Larger projects

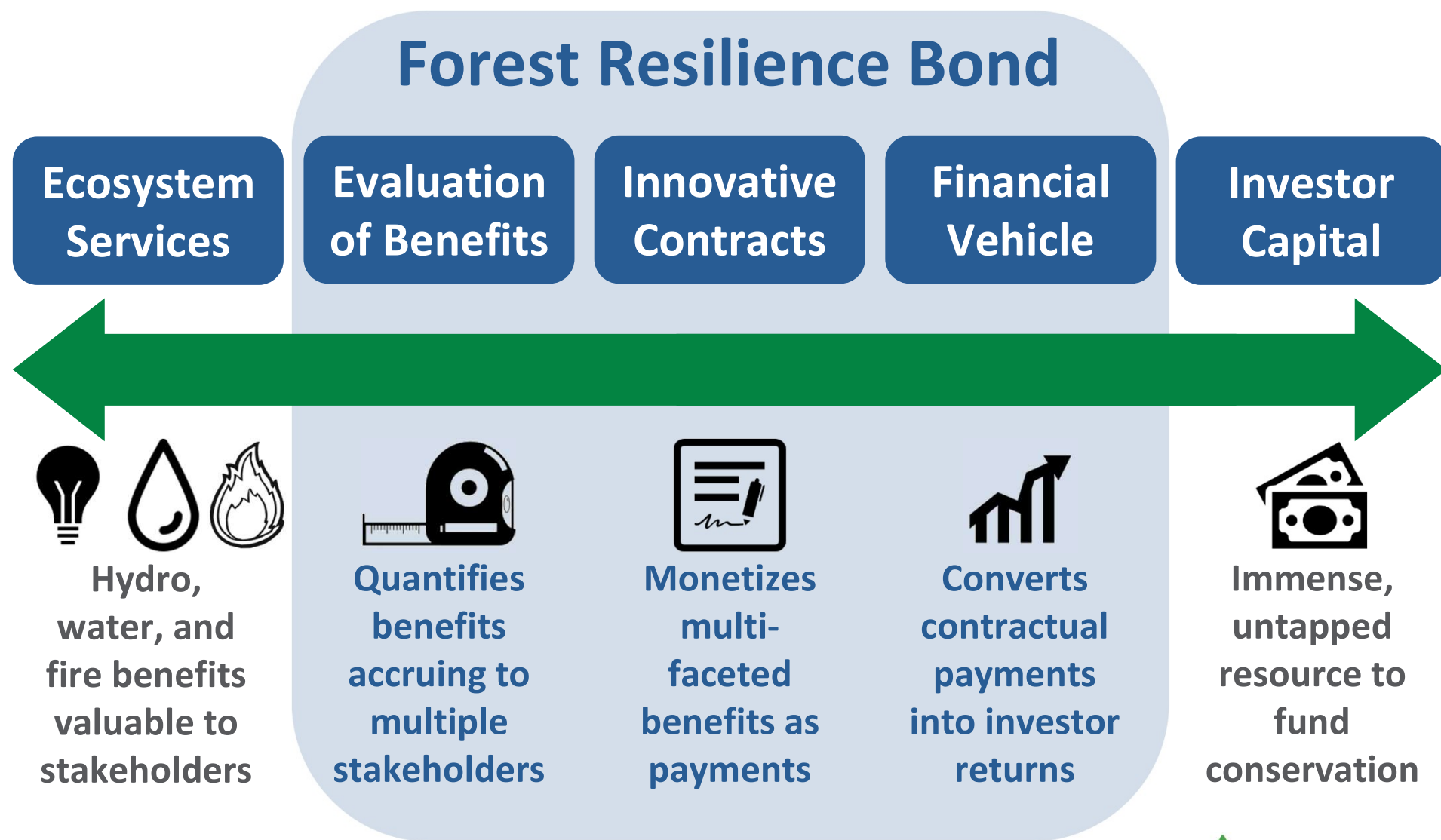
Project catalyst

Ex-post payments

1. [USFS Fiscal Year 2017 Budget Overview](#) (\$40 million for CFLRP and \$384.1 million for hazardous fuel reduction)
2. [State of Private Investment in Conservation 2016](#) (\$3.1 billion of investor capital undeployed at end of 2015)
3. [USFS Fiscal Year 2017 Budget Overview](#) (58 million acres at "high or very high risk of severe fire" @ \$1,000/acre)



# Connecting Investor Capital to Conservation





# Ecosystem Services of Forest Restoration

**Ecosystem  
Services**

**Evaluation  
of Benefits**

**Innovative  
Contracts**

**Financial  
Vehicle**

**Investor  
Capital**



**Fire Severity**



**Water Quantity & Quality**



**Hydropower Generation**



**Air Quality & Emissions**



**Job Creation**



**Community Resilience**



**Recreation & Habitat**

# Measurement and Evaluation

Ecosystem  
Services

Evaluation  
of Benefits

Innovative  
Contracts

Financial  
Vehicle

Investor  
Capital

Field-Based  
Sensors



Remote  
Sensing



Ecosystem  
Modeling

Wildfire

Vegetation

Soil

Water

Carbon



Fire Risk Reduction



Water Quantity & Quality



Hydropower Generation



natural  
capital  
PROJECT



WORLD  
RESOURCES  
INSTITUTE



# Contracting with Utilities

Ecosystem  
Services

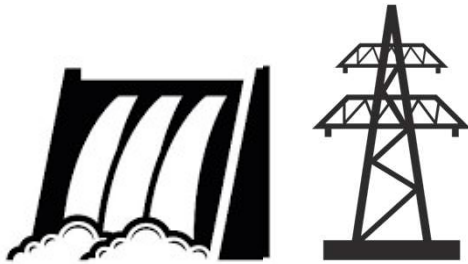
Evaluation  
of Benefits

Innovative  
Contracts

Financial  
Vehicle

Investor  
Capital

## UTILITIES



- Flexibility to pay over time, to pay based on outcomes, and to reduce utility risk
- Accelerate restoration work that otherwise may not happen
- Science and evaluation services provided through FRB



- Engagement –beneficiaries, investors, communities, etc.
- Contracting – Implementation, investors, state, etc.
- Science – robust ecosystem service measurement
- Financing – deal structuring, fund management

## RESTORATION

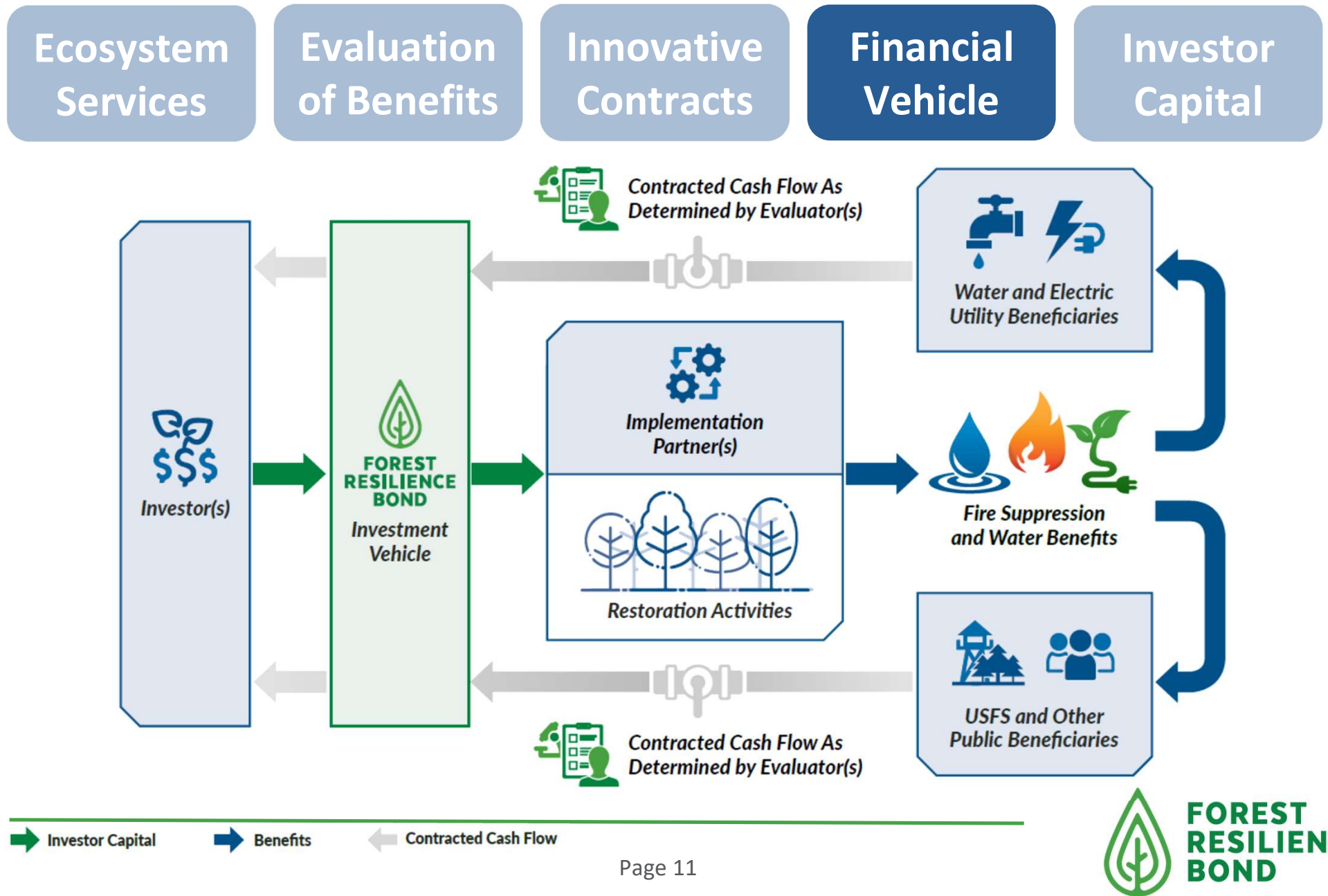


- Reduced fire risk to infrastructure, reservoir sedimentation, and forests
- Protection of communities, rural economies, air quality
- Science and evaluation of outcomes provided through FRB to improve forecasting

# Contracting with USFS

Ecosystem Services	Evaluation of Benefits	Innovative Contracts	Financial Vehicle	Investor Capital
	<div>      </div>			
<ul style="list-style-type: none"> <li>• Restoration funding at a discount due to matching funds</li> <li>• Involvement in other workstreams determined by USFS staff</li> </ul>	<ul style="list-style-type: none"> <li>• Project specific financing vehicle</li> <li>• Utilizes Cooperative Agreements (e.g. Stewardship or Challenge Cost Share)</li> <li>• Implementation partner can handle contracting and project management, as necessary</li> <li>• <u>Engagement</u> –beneficiaries, investors, communities, etc.</li> <li>• <u>Contracting</u> – utilities, investors, state, etc.</li> <li>• <u>Science</u> – robust ecosystem service measurement</li> <li>• <u>Financing</u> – deal structuring, fund management</li> </ul>			

# Financial Structuring



# Benefits of FRB for Investors

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Ecosystem  
Services

Evaluation  
of Benefits

Innovative  
Contracts

Financial  
Vehicle

Investor  
Capital

Stable, annual cash flows

Expressed investor demand

Sizeable investment opportunity

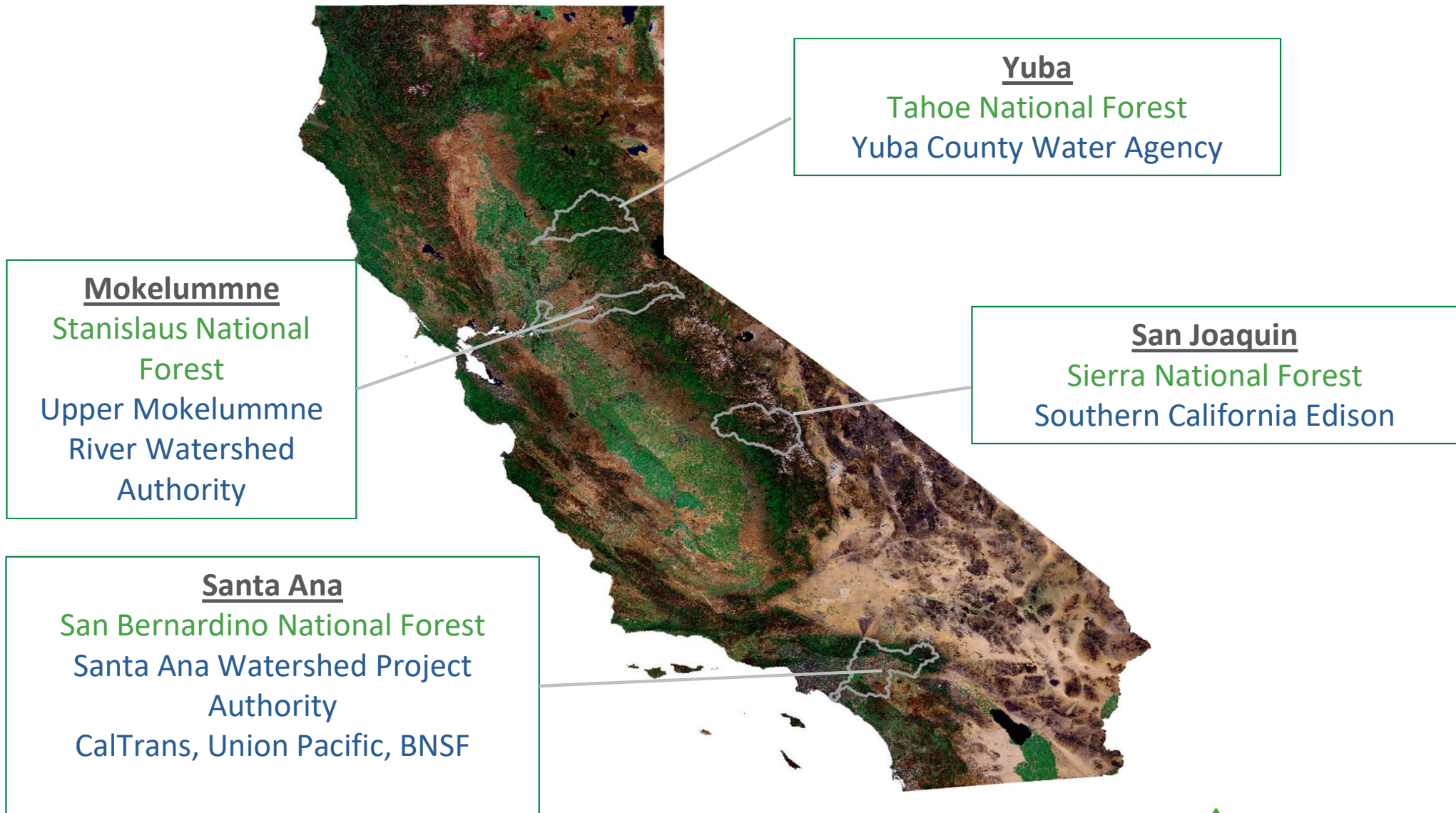
Portfolio diversification benefits

Multiple cash flow sources from low-risk counterparties



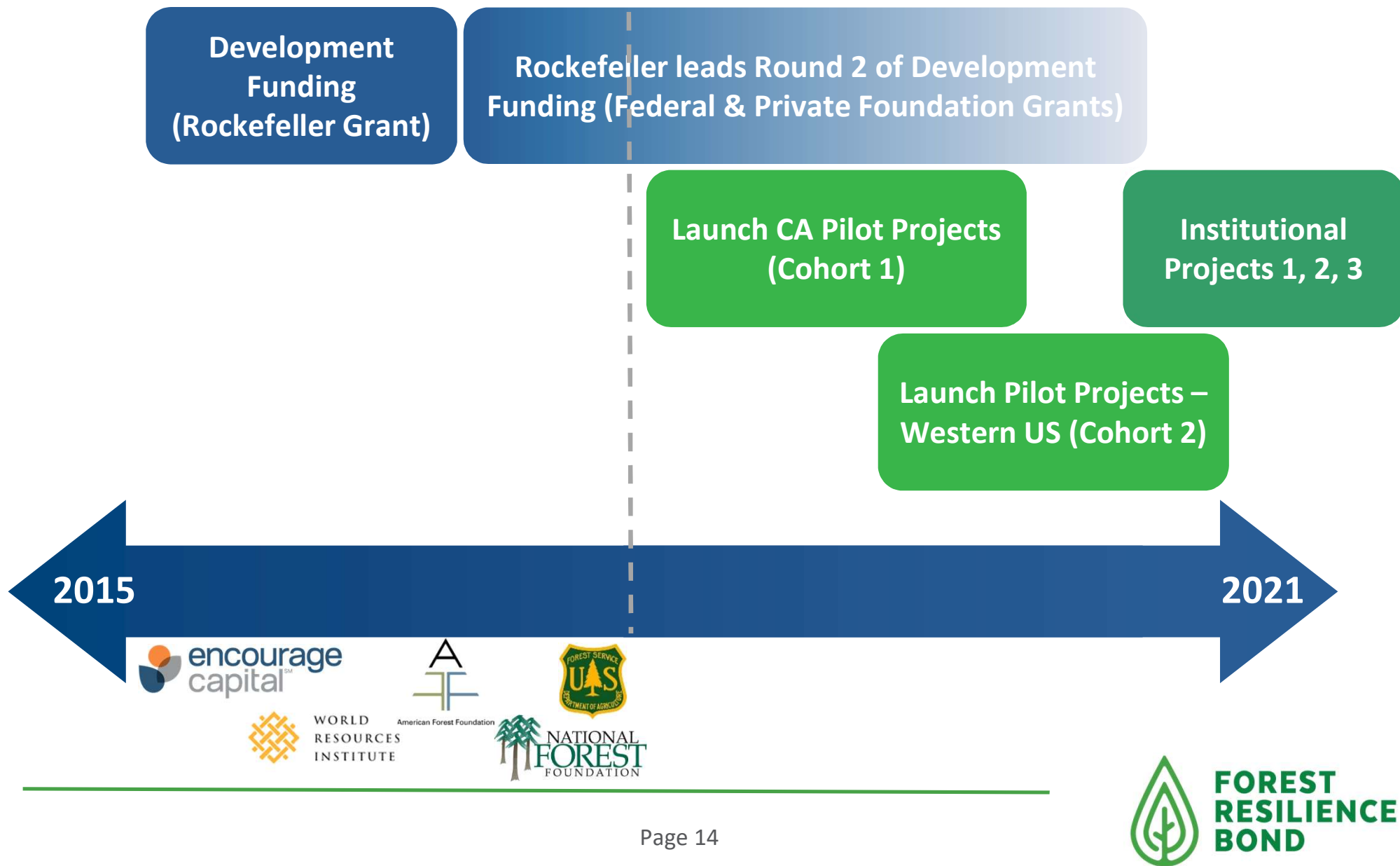
# Proposed CA Pilot Projects

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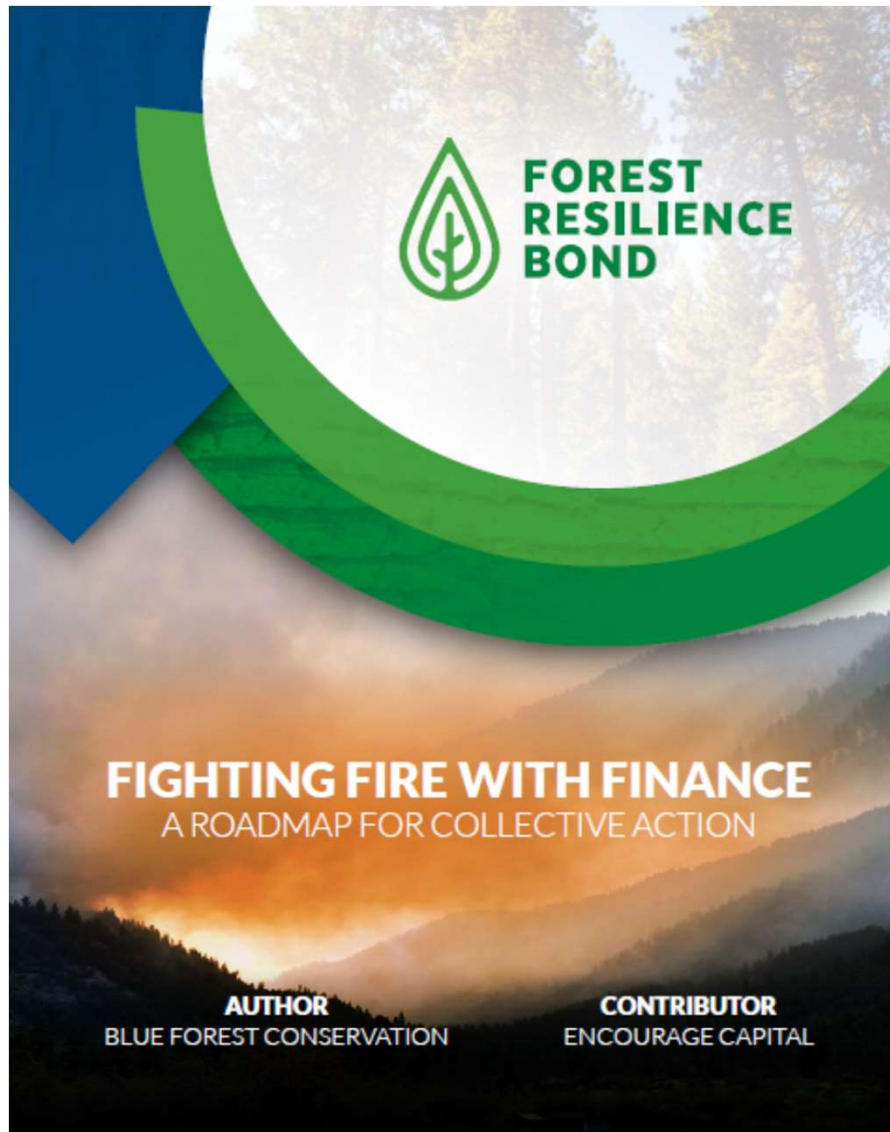


# Timeline to Market



# Additional Resources

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Explore and download the Roadmap Report:  
[www.forestresiliencebond.com](http://www.forestresiliencebond.com)

Learn more about Blue Forest Conservation:  
[www.blueforestconservation.com](http://www.blueforestconservation.com)

Learn more about Encourage Capital:  
[www.encouragecap.com](http://www.encouragecap.com)

Get in touch:  
[zach@blueforestconservation.com](mailto:zach@blueforestconservation.com)





# BLUE FOREST CONSERVATION

Financial Innovation for Sustainable Solutions



## FOREST RESILIENCE BOND

**Zach Knight**

Co-Founder and Managing Partner

[zach@blueforestconservation.com](mailto:zach@blueforestconservation.com)